

Appl. No. 10/667,958
Atty. Docket No. CM2632MC
Amdt. dated 28-Sep-2006
Reply to Office Action of 28-Mar-2006
Customer No. 27752

RECEIVED
CENTRAL FAX CENTER

SEP 28 2006

REMARKS

Amendments to the Claims

Claims 1-3 and 5-17 are pending in the present application. Claim 4 has been previously canceled. No additional claims fee is believed to be due.

Claims 1, 11, and 12 have been amended as shown above. Support for this amendment can be found at page 12, line 11 to page 14, line 5 of the specification.

It is believed these changes do not involve any introduction of new matter. Consequently, entry of these changes is believed to be in order and is respectfully requested.

Rejections Under 35 USC 102(b) and 103(a) Over US Patent No. 6,004,355 to Dias et al.

Claims 1-3, 6-10, 13, and 15 are rejected under 35 USC 102(b) as being anticipated by, or, alternatively, under 35 USC 103(a) as being obvious over, US Patent No. 6,004,355 to Dias et al. ("Dias"). The Examiner asserts that Dias teaches a hair coloring composition comprising an oxidizing agent and a sequestrant (chelant), wherein the composition has a pH of 10, wherein the composition is an aqueous solution, wherein the oxidizing agent comprises from 0.1% to 4% of aqueous hydrogen peroxide, wherein the chelant is present at an amount from 0.01% to 10%, and wherein the composition further comprises an oxidative dye precursor. The Examiner also asserts that Dias teaches a kit comprising an oxidizing agent and one or more coloring agents.

The Examiner then asserts that because Dias teaches the same hair treating ingredients of Applicants' claimed composition, the compositions of Dias would inherently have the same physical properties of log ratio, hydrogen peroxide decomposition ratio, normalized shine ratio, and ability to form a hexadendate complex with Cu²⁺. Thus, the Examiner concludes that Dias anticipates Applicants' claims. Alternatively, the Examiner asserts that it would be obvious to one of skill in the art that the compositions of Dias would have similar physical properties as those claimed by Applicants, absent unexpected results. Applicants respectfully traverse the present rejection based on the following comments.

Dias is not anticipatory because it fails to disclose each and every limitation of Applicants' claims with sufficient specificity. See MPEP 2131.03. Moreover, the physical properties of Applicants' claimed compositions are not inherent in the

Appl. No. 10/667,958
 Atty. Docket No. CM2632MC
 Amdt. dated 28-Sep-2006
 Reply to Office Action of 28-Mar-2006
 Customer No. 27752

exemplified compositions of Dias. As currently amended, Applicants' claim 1 recites a composition comprising (i) an oxidizing agent and (ii) chelant having a $\frac{\log K_{\text{Cat}}}{\log K_{\text{Cal}}}$ ratio calculated at pH 10 of at least about 3.20; wherein the chelant is an aminocarboxylic acid chelant selected from ethylenediamine-N,N'-disuccinic acid (EDDS), ethylenediamine-N,N'-diglutaric acid (EDDG), 2-hydroxypropylenediamine-N,N'-disuccinic acid (HPDDS), glycinate-N,N'-disuccinic acid (GADS), ethylenediamine-N,N'-bis(ortho-hydroxyphenyl acetic acid) (EDDHA), and salts thereof, derivatives thereof and mixtures thereof; and wherein the chelant is present at a level of at least about 0.1% by weight of the composition.

It is believed that Applicants' compositions containing a chelant which has the claimed properties, is selected from the recited group, and is present in the claimed amount, act to chelate environmental and intrinsic heavy metal ions which would otherwise react with the oxidizing agent to give harmful species, such as free radicals, which damage the hair by oxidizing the disulfide bonds of hair. Consequently, Applicants' compositions provide a good lightening effect to hair during oxidative treatments, such as bleaching and dyeing, yet result in less damage to the hair than that which occurs during the use of known oxidative treatment compositions.

Dias discloses hair coloring compositions which comprise an oxidizing agent and which also optionally may contain a chelant; however, Dias does not teach with sufficient specificity which type of chelants to select and at what level those chelants must be present in the composition in order to constitute an anticipation of Applicants' claims. Dias broadly discloses a variety of chelants which are suitable for use in the compositions of Dias. Additionally, Dias teaches that chelants may be present in the compositions of Dias at a level from about 0.005% to about 20%, and most preferably from about 0.05% to about 2%. Notably, every composition exemplified in Dias, including Example A, contains the chelant EDTA at a level of 0.1%.

In contrast to the disclosure of Dias, Applicants' claimed compositions require a chelant having a $\frac{\log K_{\text{Cat}}}{\log K_{\text{Cal}}}$ ratio calculated at pH 10 of at least about 3.20, and wherein the chelant is an aminocarboxylic acid chelant selected from ethylenediamine-N,N'-disuccinic acid (EDDS), ethylenediamine-N,N'-diglutaric acid (EDDG), 2-hydroxypropylenediamine-N,N'-disuccinic acid (HPDDS), glycinate-N,N'-disuccinic

Appl. No. 10/667,958
 Atty. Docket No. CM2632MC
 Amdt. dated 28-Sep-2006
 Reply to Office Action of 28-Mar-2006
 Customer No. 27752

acid (GADS), ethylenediamine-N-N'-bis(ortho-hydroxyphenyl acetic acid) (EDDHA), and salts thereof, derivatives thereof and mixtures thereof. While the calculation of this

$\frac{\log K_{\text{CUL}}}{\log K_{\text{CAL}}}$ ratio is within the ability of one of ordinary skill in the art, a description of this $\log K_{\text{CUL}}$

parameter is provided at page 12, line 12 to page 15, line 13 of the specification.

Additionally, a list of the calculated $\frac{\log K_{\text{CUL}}}{\log K_{\text{CAL}}}$ ratios for several different chelants is

provided at page 15 of the specification. Chelants such as EDDS and EDDHA have a $\frac{\log K_{\text{CUL}}}{\log K_{\text{CAL}}}$ ratio of greater than about 3.20, whereas chelants such as EDTA have a $\frac{\log K_{\text{CUL}}}{\log K_{\text{CAL}}}$

$\frac{\log K_{\text{CUL}}}{\log K_{\text{CAL}}}$ ratio of less than about 3.20 (specifically, EDTA has a $\frac{\log K_{\text{CUL}}}{\log K_{\text{CAL}}}$ ratio of 1.60).

Thus, as Dias exemplifies compositions containing EDTA, Dias does not teach with sufficient specificity which type of chelants to select to anticipate Applicants' claims.

Additionally, the $\frac{\log K_{\text{CUL}}}{\log K_{\text{CAL}}}$ ratio required by Applicants' claims is not an inherent

physical property of the exemplified compositions of Dias which contain EDTA.

As a result, each and every element of Applicants' claim 1, as well as claims 2-3, 6-10, 13, and 15, which contain the limitations of claim 1, is not disclosed in Dias with sufficient specificity to constitute anticipation. Moreover, Applicants' have demonstrated that the physical properties of Applicants' claims are not inherent properties of the exemplified compositions of Dias.

Therefore, Applicants' claims 1-3, 6-10, 13, and 15 are novel over Dias.

Applicants' claimed invention also is not obvious in view of Dias. Dias does not teach or suggest all of Applicants' claim limitations and, therefore, does not establish a *prima facie* case of obviousness. *See* MPEP 2143.03. As discussed above, Dias fails to teach or suggest the particular physical properties of the chelants of Applicants' claims. Moreover, Applicants have demonstrated that these physical properties are not inherent in

the exemplified compositions of Dias. For the $\frac{\log K_{\text{CUL}}}{\log K_{\text{CAL}}}$ ratios for several different

chelants, including EDDS and EDTA, see page 15 of the specification. Therefore, Dias fails to establish a *prima facie* case of obviousness with respect to Applicants' currently amended claims.

Appl. No. 10/667,958
Atty. Docket No. CM2632MC
Amdt. dated 28-Sep-2006
Reply to Office Action of 28-Mar-2006
Customer No. 27752

Alternatively, Applicants' claims are not obvious in view of Dias because the Declaration of Jennifer Mary Marsh submitted previously with the Amendment dated January 13, 2006 (hereinafter referred to as "the Marsh Declaration II" to avoid confusion with the Marsh Declaration filed with a previous Amendment dated June 14, 2005), demonstrates that the compositions of the present invention, as currently claimed, possess superior and unexpected properties over compositions comparable to the exemplified compositions of Dias. Specifically, the compositions of the present invention unexpectedly result in significantly less damage to hair that has been treated with the compositions.

As shown in Table 1 of the Marsh Declaration II, the Normalized Shine Ratio, which is an indication of hair damage, is consistently better for compositions comprising EDDS at various levels than for compositions comprising EDTA at various levels. As the Normalized Shine Ratio is an index against the Normalized Shine value of virgin hair, a Normalized Shine Ratio value of greater than 1.0 means that the tested hair has a higher Normalized Shine value (*i.e.*, appears less damaged) than virgin hair. Conversely, a Normalized Shine value of less than 1.0 means that the tested hair has a lower Normalized Shine value (*i.e.*, appears more damaged) than virgin hair.

For example, it can be seen that Product 3, which comprises 0.1% EDDS, resulted in a Normalized Shine Ratio of 1.01, whereas Product 9, which comprises 0.1% EDTA, resulted in a Normalized Shine Ratio of 0.85. Thus, the hair treated with Product 3 appears less damaged than virgin hair, and the hair treated with Product 9 appears more damaged than virgin hair. Similarly, Product 6 which comprises 1.0% EDDS, resulted in a Normalized Shine Ratio of 1.03, whereas Product 10, which comprises 1.0% EDTA, resulted in a Normalized Shine Ratio of 0.70. Applicants respectfully submit that these results are clearly superior and unexpected.

To further illustrate the superior and unexpected properties of the compositions of the present invention, Table 2 of the Marsh Declaration II provides the results of visual damage assessment with a scanning electron microscope of the treated hair. Notably, Product 3, which comprises 0.1% EDDS, resulted in a Damage Index of 8.4. In contrast, Product 9, which comprises 0.1% EDTA, resulted in a Damage Index of 63.6. Thus, the hair treated with Product 9 was significantly more damaged than hair treated with Product 3. Similarly, Product 6, which comprises 1.0% EDDS, resulted in a Damage Index of 3.0,

Appl. No. 10/667,958
Atty. Docket No. CM2632MC
Amdt. dated 28-Sep-2006
Reply to Office Action of 28-Mar-2006
Customer No. 27752

whereas Product 10, which comprises 1.0% EDTA, resulted in a Damage Index of 68.6. Applicants respectfully submit that these results also are superior and unexpected.

Accordingly, the Marsh Declaration II demonstrates that the compositions of the present invention, as currently claimed, possess superior and unexpected properties over the compositions comparable to the exemplified compositions of Dias.

Therefore, Applicants' claims 1-3, 6-10, 13, and 15 are novel and nonobvious over Dias.

Rejections Under 35 USC 103(a) Over US Patent No. 6,004,355 to Dias et al. in view of US Patent No. 5,100,436 to Wenke

Claim 5 is rejected under 35 USC 103(a) as being unpatentable over US Patent No. 6,004,355 to Dias et al. ("Dias") in view of US Patent No. 5,100,436 to Wenke ("Wenke"). The Examiner asserts that Dias teaches hair coloring compositions, as described above, wherein the compositions are thickened aqueous compositions. The Examiner acknowledges that Dias does not teach a hair treatment composition in the form of an oil-in-water emulsion. Then, the Examiner asserts that Wenke teaches a composition comprising oxidative dye precursors, oxidizing agents, and chelating agents, wherein the composition may be in the form of an emulsion, suspension, lotion, or gel. Thus, the Examiner concludes that it would have been obvious to one of skill in the art to formulate the composition of Dias in an emulsion because Wenke teaches different forms of hair dyeing compositions, absent unexpected results. Applicants respectfully traverse the present rejection based on the following comments.

The combination of Dias and Wenke does not teach or suggest all of Applicants' claim limitations and, therefore, does not establish a *prima facie* case of obviousness. See MPEP 2143.03. Applicants' claim 5 contains the limitations of claim 1. As discussed above, Applicants' claim 1 recites a composition comprising (i) an oxidizing agent and (ii) chelant having a $\frac{\log K_{Cat}}{\log K_{Cat}}$ ratio calculated at pH 10 of at least about 3.20; wherein the

chelant is an aminocarboxylic acid chelant selected from ethylenediamine-N,N'-disuccinic acid (EDDS), ethylenediamine-N,N'-diglutaric acid (EDDG), 2-hydroxypropylenediamine-N,N'-disuccinic acid (HPDDS), glycarnamide-N,N'-disuccinic acid (GADS), ethylenediamine-N-N'-bis(ortho-hydroxyphenyl acetic acid) (EDDHA), and

Appl. No. 10/667,958
Atty. Docket No. CM2632MC
Arndt. dated 28-Sep-2006
Reply to Office Action of 28-Mar-2006
Customer No. 27752

salts thereof, derivatives thereof and mixtures thereof; and wherein the chelant is present at a level of at least about 0.1% by weight of the composition.

Although Wenke discloses that its compositions may be in the form of an emulsion, neither Dias nor Wenke teach or suggest the selection of chelants having the particular physical properties of the chelants of Applicants' claims.

Therefore, the combination of Dias and Wenke fails to establish a *prima facie* case of obviousness with respect to Applicants' claim 1, as well as Applicants' claim 5. As a result, Applicants' claim 5 is novel and nonobvious over Dias in view of Wenke.

Alternatively, Applicants' claim 5 is not obvious over Dias in view of Wenke because, as discussed above, the Marsh Declaration II demonstrates that the compositions of the present invention possess superior and unexpected properties over the compositions of Dias. Although Wenke discloses that its hair coloring compositions may be in the form of emulsions, suspensions, lotions, or gels, Wenke fails to provide a teaching or suggestion for achieving the superior results of Applicants' claimed compositions.

Therefore, Applicants' claim 5 is novel and nonobvious over the combination of Dias and Wenke.

Rejections Under 35 USC 103(a) Over US Patent No. 6,004,355 to Dias et al.

Claims 11-12, 14, and 16-17 are rejected under 35 USC 103(a) as being unpatentable over US Patent No. 6,004,355 to Dias et al. ("Dias"). The Examiner asserts that Dias teaches methods for coloring hair comprising the steps of applying compositions that comprise an oxidizing agent, oxidation dye precursors, and chelating agents. The Examiner acknowledges that Dias does not teach Applicants' claimed methods with sufficient specificity to constitute anticipation of the claims. However, the Examiner asserts that it would have been obvious to one of skill in the art to use the methods of Dias with a composition that comprises similar ingredients to the compositions of Dias. Applicants respectfully traverse the present rejection based on the following comments.

Applicants' claimed methods are not obvious in view of Dias. Each of Applicants' claims 11-12, 14, and 16-17 directly or indirectly includes the limitations of the $\frac{\log K_{\text{CAL}}}{\log K_{\text{CAL}}}$ ratio, the group of recited aminocarboxylic acid chelants, and the claimed chelant level. Accordingly, an argument analogous to that presented above with respect to claim 1 is applicable. Specifically, Dias does not teach or suggest all of Applicants' claim

Appl. No. 10/667,958
Atty. Docket No. CM2632MC
Amdt. dated 28-Sep-2006
Reply to Office Action of 28-Mar-2006
Customer No. 27752

limitations and, therefore, does not establish a *prima facie* case of obviousness. Alternatively, Applicants' claims are not obvious in view of Dias because the Marsh Declaration II demonstrates that the compositions of the present invention, as currently claimed, possess superior and unexpected properties over compositions comparable to the exemplified compositions of Dias.

Therefore, Applicants' claims 11-12, 14, and 16-17 are novel and nonobvious over Dias.

CONCLUSION

In view of the claim amendments and the remarks presented herein, it is requested that the Examiner reconsider and withdraw the present rejections. Early and favorable action in the case is respectfully requested.

Applicant has made an earnest effort to place their application in proper form and to distinguish the invention as now claimed from the applied references. In view of the foregoing, Applicant respectfully requests reconsideration of this application and allowance of Claims 1-3 and 5-17.

Respectfully submitted,
The Procter & Gamble Company

Date: September 28, 2006
Customer No. 27752

By Linda M. Sivik
Linda M. Sivik
Agent for Applicant(s)
Registration No. 44,982
(513) 626-4122